

Application No.: 10/508,837
Inventor: GROSSMAN
Docket No.: 53368

REMARKS/ARGUMENTS

Claim Amendments

Applicant has amended claim 2 to clarify that one of the claimed enzymes or a nucleic acid encoding one of the enzymes is brought into contact with a test substance. Support can be found at least in the original claim by virtue of the recitation “bringing ... into contact with one or more test substances under conditions which permit the binding of the test substance(s) to one of the abovementioned enzymes or to the nucleic acid sequence which encodes one of the abovementioned enzymes.” (Emphasis added). Applicant has amended such claim to comport with those allowed by the European Patent Office.

Claim Rejections under 35 USC §112

The Office Action indicated that claim 1 was rejected as being indefinite on grounds that Applicant has not clearly set forth the active step of binding said nucleic acid sequence with the said test substance. Applicant respectfully submits that claim 1 was canceled by virtue of Applicant’s paper of July 29, 2008.

Notwithstanding, where the claim rejection was intended to apply to claim 2, Applicant respectfully submits that claim 2 has been amended to clarify that one of the claimed enzymes or a nucleic acid encoding one of the enzymes is brought into contact with a test substance.

In view thereof, in as much as the rejection applies to claim 2, the rejection should be withdrawn.

Claim Rejections under 35 USC § 103

1.) The Examiner rejected claims 2-12 under 35 USC § 103 as allegedly obvious in view of Bounaga (WO 01/20020 A2), Finn (Biorganic and Medicinal Chemistry Letters) and Arteca (Plant Growth Substances: Principle and Applications). Applicant respectfully traverses the rejection.

Regarding Bounaga, Bounaga describes a method for screening and identifying

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compounds based on the incorporation of genes from other species into yeast. The claimed inventive method is not described. More specifically, Bounaga does not describe or otherwise suggest the three targeted enzymes (tryptophan aminotransferase, indole-3-pyruvate decarboxylase and indole-3-acetaldehyde oxidase) of the instant claims and does not provide any suggestion of the possibility of targeting the claimed enzymes and/or compounds.

With regard to Finn, Finn describes that herbicides may be designed for purposes of attacking the biosynthetic pathway for tryptophan. Tryptophan, however, when compared with the claimed enzymes, is a compound that is found at an earlier position in the biopathway. In fact, tryptophan is more appropriately considered to comprise a “starting” compound of the biopathway of the instantly targeted enzymes (See, e.g. Figure 3.3. on page 48 of the Arteca reference). Finn also teaches that the synthesis of tryptophan can effectively be inhibited by the compounds specifically described therein. Accordingly, Finn leads the skilled artisan to utilize the specific compounds described therein and effectively teaches away from the combination propounded in the Office Action. That is, in view of the teachings of Finn, there is simply no underlying rationale or motivation for a skilled artisan to continue to search for other additional compounds that may interrupt the biopathway in a later stage. Furthermore, Finn explicitly states that “All organisms that synthesize tryptophan are known to do so by a single route.” (See Introduction, Second paragraph). Accordingly, Finn specifically teaches away from further attempts to achieve herbicide activity by inhibition of other compounds, which can be synthesized by more than one route.

With regard to Arteca, Arteca describes the pathway from tryptophan to indole-3-acetic acid. (See pages 48 and 49). Upon review of Figure 3.3, page 48, it is seen that indole-3-acetic acid can be synthesized from tryptophan via two routes. Alternatively, as described by Arteca, “There are two major pathways in which tryptophan may be converted to IAA of which one or both may function in a given plant species.” (Page 49, 1st paragraph). As shown in FIG 3.3, the instantly targeted enzymes do not affect the right route at all. Thus, Arteca teaches away from the instant claims as a skilled artisan would have no reasonable expectation of success. As indicated in Applicant’s previous response, many biological processes are redundant so there is simply no reasonable expectation of success. Additionally, Arteca states that auxins, i.e., indole-

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3-acetic acid, have various functions in different plants - even in desirable plants. For example on page 57, it is stated that “auxins ... are thought to play a fundamental role in determining growth patterns in fruits.” This statement, however, teaches away from the claimed invention because a skilled artisan would expect that targeting the three specific enzymes according to the instant claims invention would also negatively affect desirable plants, which is to be avoided. Moreover, the fact that indole-3-acetic acid can be synthesized in plants via different routes would lead a skilled artisan away from combining the teachings of Arteca with those of Finn, which specifically describes a compound that is synthesized via a single route.

Finally, the documents discussed in Applicant’s previous response further discourage a skilled artisan from combining the references as suggested and/or suggest that the motivation to combine the references to arrive at the claimed invention does not emanate from that knowledge generally available to the skilled artisan. That is, the documents addressed in Applicant’s previous response lead the skilled artisan to conclude that the IAA pathway is not suitable when trying to find a herbicide because it is obviously very different in different organisms (seacot, peas, cucumbers . . .) and, additionally, often redundant. Accordingly, absent the Applicant’s disclosure, there is simply no reasonable expectation that the combination of the references would be successful.

Accordingly, in view of the cited references and that knowledge generally available to the ordinarily skilled artisan, it is apparent that such individual would not have been motivated to combine the teachings of the respective references in the manner of Applicant to arrive at the claimed invention. Additionally, given the fact that metabolic pathways are known to be redundant, absent the Applicant’s disclosure, there is simply no reasonable expectation that the combination propounded by the Examiner would successfully provide herbicidal activity.

Accordingly, absent the Applicant’s very own disclosure, upon considering the references as a whole, including those portions that teach away from the claimed invention, it is seen that there is simply no suggestion or motivation in the cited references, or that knowledge generally available to the skilled artisan at the time the invention was made, to combine/modify the reference teachings in the manner of the Applicant to arrive at the claimed invention.

The rejection should be withdrawn.

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Conclusion

Applicant respectfully submits that the present application is in condition for allowance, which action is courteously requested. Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees to Deposit Account No. 14-1437. Please credit any excess fees to such deposit account.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'SPK', is written over the printed name of S. Peter Konzal.

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